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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/945,171	08/30/2001	Howard J. Smith	920476-904953	3257
23644	7590	07/14/2006	EXAMINER	
BARNES & THORNBURG, LLP			FILE, ERIN M	
P.O. BOX 2786				
CHICAGO, IL 60690-2786			ART UNIT	PAPER NUMBER
			2611	

DATE MAILED: 07/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/945,171

Applicant(s)

SMITH ET AL.

Examiner

Erin M. File

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 11 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 11-14 is/are rejected.
- 7) ☐ Claim(s) 9 and 10 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 August 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Response to Amendment*

1. The affidavit under 37 CFR 1.132 filed May 11, 2006 is sufficient to overcome the rejection of claims 1, 2, 4-9, 11-14 based upon Wessel.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-5, 7, 11, 13, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Olive (U.S. Patent No. 2,900,459) in view of Bar-David (U.S. Pub. No. 2001/0054931).

**Claims 1, 7, 11, 13, 14**, Olive discloses a structure in which two detectors (fig. 1, 15, 17) are selectively chosen by a switch (16) for input to a differential amplifier (18). Olive further discloses the use of modulators (20) and a rectifier (21) in order to correct for errors. Olive fails to disclose normalizing the amplifier output and time aligning the output and further processing means to determine error values as a function of the amplifier input signal level, however, Bar-David discloses a normalizing amplifier output to input level ([0015], lines 1-4) and time aligning (time aligning in the specification of the instant application is achieved

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through phase compensation, Bar-David discloses compensating circuitry to eliminate phase difference in amplification circuitry, [0076], lines 4–9) and processing means to determine error values as a function of amplifier input signal level ([0015], lines 4-9). As Bar-David discloses that his method of normalizing an amplifier input and output improves the efficiency and dynamic range of an amplifier (abstract, lines 1-3), it would have been obvious to one skilled in the art at the time of invention to incorporate the normalizing amplifier as disclosed by Bar-David into the invention of Olive.

**Claim 2**, Olive discloses difference means is a difference amplifier coupled to one of the detector outputs (fig. 1, 18).

**Claim 3**, Bar-David discloses an offset voltage applied to output of one of said detectors [0073]).

**Claim 4**, Bar-David discloses detecting output coupled to digital signal processing means and the difference means is implemented by the digital signal processing means ([0076], lines 4–9).

**Claim 5**, Bar-David further discloses phase detection comprises a switch matrix having a  $\pi/2$  hybrid coupler between the detector and amplifier such that said error represents phase error ([0076]).

4. Claims 6, 8, 10, 12, are rejected under 35 U.S.C. 103(a) as being unpatentable over Olive (U.S. Patent No. 2,900,459) in view of Bar-David (U.S. Pub. No. 2001/0054931) as applied to claim 1 above, and further in view of Shimamori (U.S. Patent No. 6,177,786).

**Claim 6**, neither Olive nor Bar-David disclose a digital signal processing means averages said error values over a predetermined period for each amplifier input signal level, however, Shimamori discloses a digital error value averaged by the correction unit (col. 3, lines 26-29). Because Shimamori discloses this averaging process reduces the error of the output (col. 3, line 29), it would have been obvious to one skill in the art at the time of invention to incorporate the error averaging as disclosed by Shimamori into the combined invention of Olive and Bar-David.

**Claims 8, 12**, neither Olive nor Bar-David disclose the predistorter averages the error vales for each amplifier input signal level, however, Shimamori discloses a digital error value averaged by the correction unit (col. 3, lines 26-29).

***Allowable Subject Matter***

5. Claims 9 and 10 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erin M. File whose telephone number is (571)272-6040. The examiner can normally be reached on M-F 10:00-6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on (571) 272-3021.

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The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Erin M. File

EMF

7/8/2006

  
MOHAMMED GHAYOUR  
SUPERVISORY PATENT EXAMINER